

Event Category: Flagship Event

Theme: SKY HIGH- AEROMODELLING

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About the event: The competition is launched with the vision to provide a unified platform for students interested in aerospace and related engineering disciplines - to demonstrate their aero-modeling expertise. Participating teams must design, fabricate, and demonstrate a fixed wing model unpowered glider and a catapult-launcher with given constraints that can achieve maximum endurance/ flight time. Considering the pandemic, this year's competition is being held remotely – participants will have to submit their projects via videos.

Concept Note:

Safety:

- Participants should follow all Covid19 precautions while participating.
- Participants should test their gliders in open spaces, preferably in the early morning, and not indoors or near people/ vehicles/ buildings. Since it is a glider, a reasonably- sized open space in the neighborhood can be used and the participants need not travel far for large grounds.

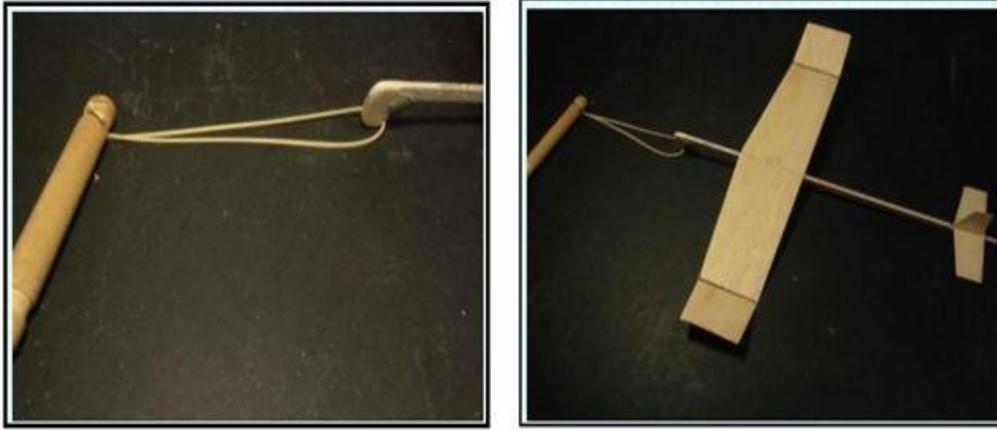
Rules:

1. Maximum of 3 members in a team.
2. One person can participate in only one team.
3. Last date for the video submission is **1st September 2021**.

Design Constraints:

1. The competition requires participants to design and fabricate a glider and a catapult mechanism to launch it. Readymade models are not allowed.
2. Wingspan should be a maximum of 50 cm.
3. The glider should be launched using a catapult mechanism and should not have any additional power sources.
4. The catapult launch mechanism should be in such a way that it has a maximum rubber loop of 1/16 inch or 0.15875 cm of cross section rubber loop. It should be a 100% mechanical device and no use of electronics/ electrical power is allowed.

Example of typical configuration of Catapult-glider launch: -



5. The catapult should have a hold and release mechanism to launch the glider by pulling the elastic loop.

Example: The participant can pull the rubber of the catapult manually to “activate” the system and bring it to the “launch position” but should not continue to hold manually until release. The catapult should have a mechanism to be in an “activated” state. To launch, the participant should then pull the elastic loop and the catapult should then release the glider by itself without any further manual intervention.

Abstract Submission:

- Each team needs to submit an abstract on their aircraft, which should be no longer than 15 pages (A4 size 1.5 line spacing) with standard formatting. The Abstract must document the basic design of the aircraft (dimensions, wing areas, velocity, etc.) and should also explain how their design is suitable for the given problem.
- Along with the abstract, participants must also send a zip file containing at least 5 and no more than 10 photographs of the aircraft while it is being built.

Guidelines for the events:

- Students should design, build, and demonstrate a glider and a catapult launch mechanism with the goal of achieving maximum endurance/ flight time. The flight time is measured as the time from launch to landing.
- Teams with the highest flight time will be selected as winners.
- Participants should record a video and submit the same.

Guidelines for the video:

1. Video can be recorded with a smartphone or a camera. The person recording the video should be in a safe, stationary position and should not move/ run while recording.
2. Recording setup: An analog watch should be placed in front of the camera while recording the video in such a way that the time is visible throughout the recording. It is recommended

to build a small device to hold the camera and watch in position to achieve this. Please ensure the watch does not take up more than 20% of the screen space.

3. The video recording should be done in 3 steps, **without any break in between**.
 - A. **Dimension:** A 1m metal scale (which is available in the stores) should be used to measure the wingspan of the glider and the dimensions of the catapult mechanism.
 - The catapult should be placed in such a manner that the scale reading is showing its dimension of elastic loop diameter and dowel stick around which elastic loop is wrapped and tie
 - The height of the catapult should be measured from the front/ side view in a way that the max height is clearly visible.
 - In this part, the dimensions of the glider must be measured and clearly visible in the video.
 - This should not exceed 1 min duration
 - B. **Launch:** The glider should be launched by releasing it using the Catapult mechanism.
 - C. Both the glider and the watch should be visible throughout the video – right from the beginning to the landing.
 - D. Explanation of the design can be given by the participant(s) with a closer shot of the glider and launcher and can be attached to the end of the demonstration. This part should not exceed 1 minute.
 - E. No editing should be done to the audio or video other than attaching the explanation (point 5) at the end. Name of participants, college/ school etc. should be added in the description of the video in the format of (NAME OF PARTICIPANTS_COLLEGE NAME) when uploading to YouTube and not by editing the video.
 - F. Each team can submit only one video for the competition.
 - G. The video should clearly show the glider landing on the ground. Any submissions that do not show landing on the ground will be disqualified.
 - H. The video should be uploaded to YouTube and the link should be submitted in the form.
 - I. The video should include only registered participants and no others should be present.

Winner Criteria: Flight Duration

Prize Money: Rs 10,000/-